

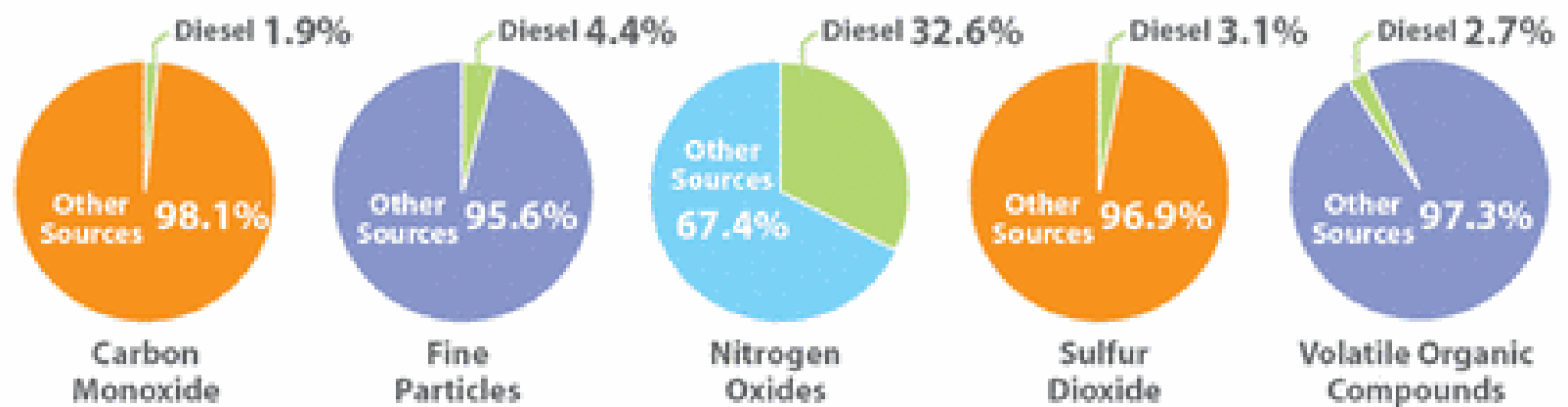
Michigan Clean Diesel Initiative

G. Vinson Hellwig
Chief

Air Quality Division

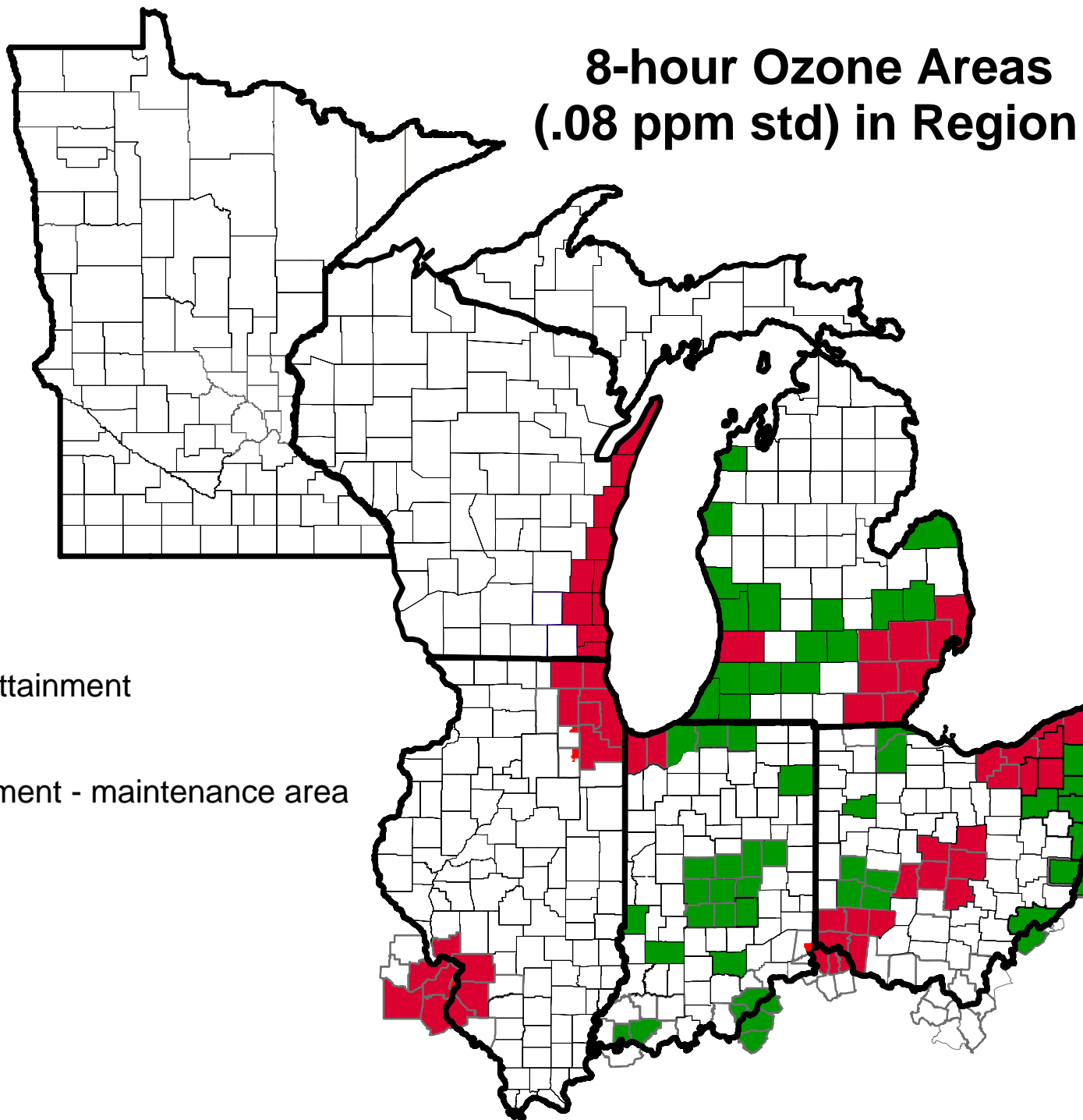
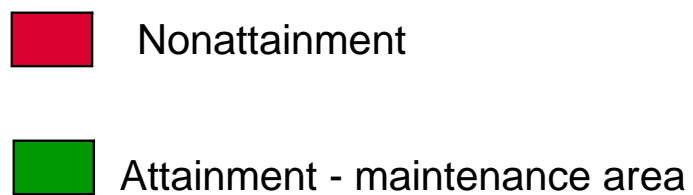
Michigan Department of Environmental Quality



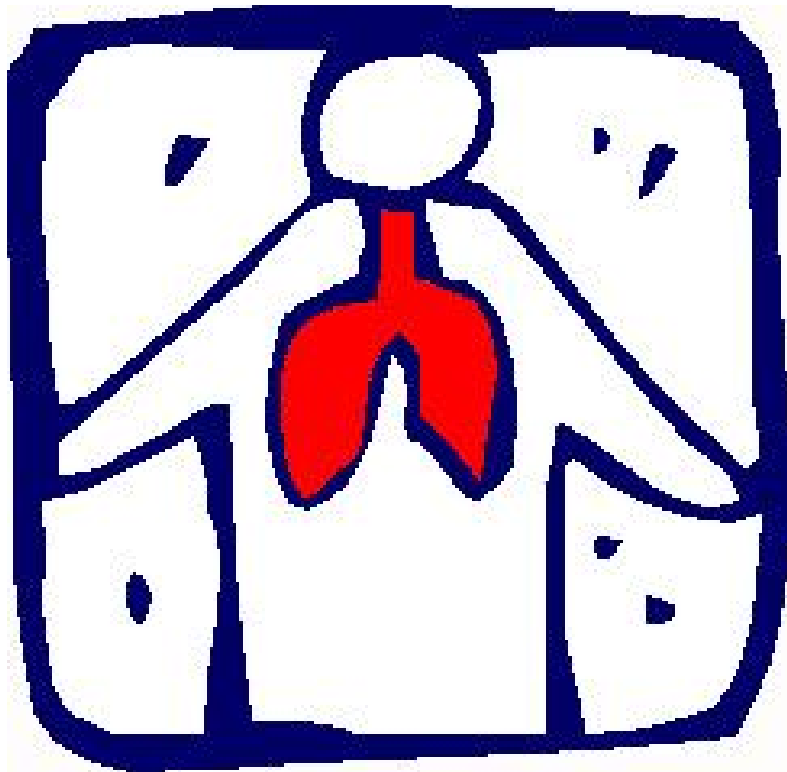


Source: U.S. EPA National Emissions Inventory - Average Annual Emissions, All Criteria Pollutants: <http://www.epa.gov/ttnchie1/trends/>; Based on most current data

8-hour Ozone Areas (.08 ppm std) in Region 5



Health and Environmental Impacts of Ground-Level Ozone

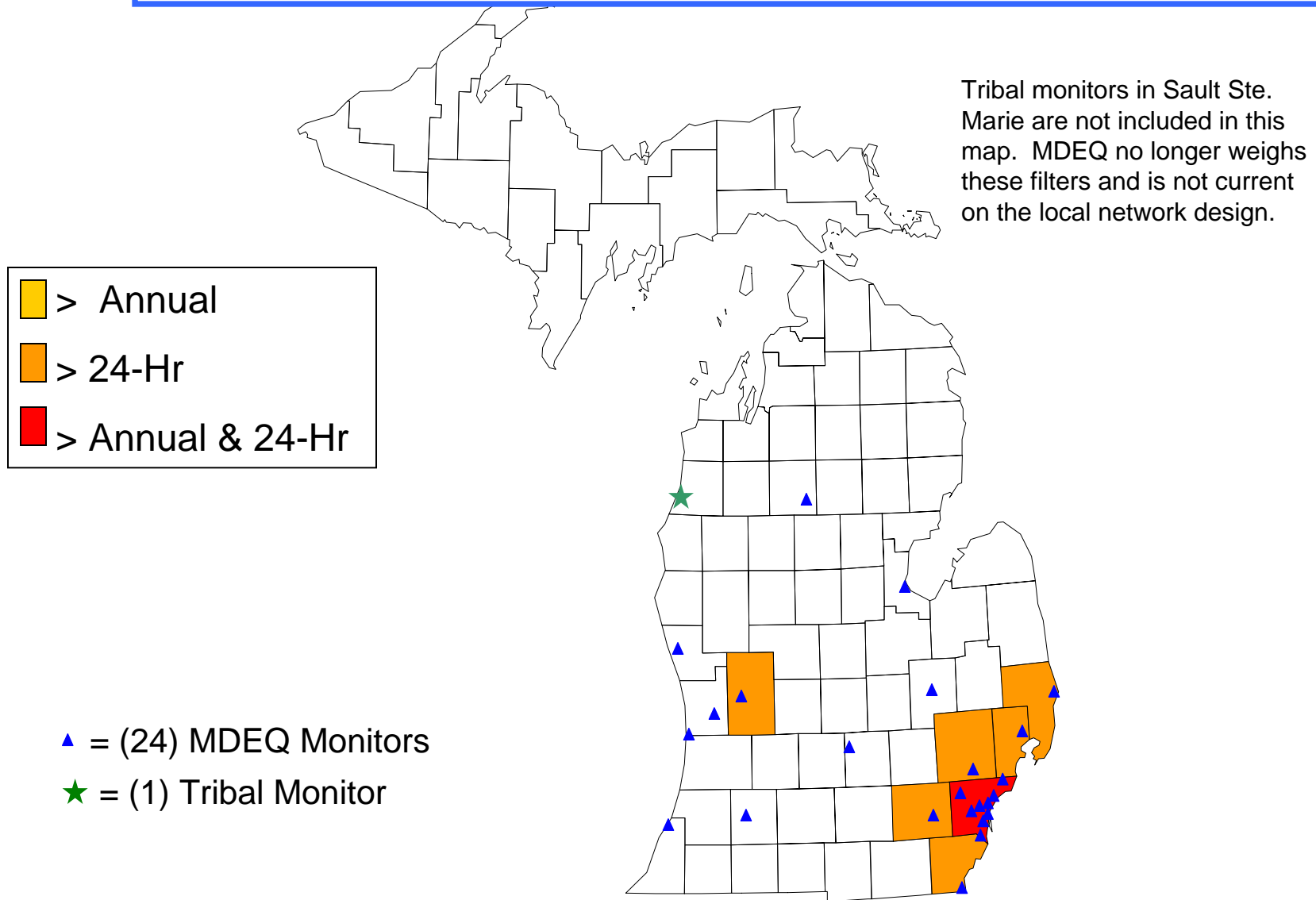


- Irritates lung airways and can cause inflammation.
- Aggravates asthma and existing respiratory ailments
- Increases vulnerability to pneumonia and bronchitis
- Make plants more vulnerable to disease, insects, and other pollutants
- Reduces yields of crops and forests

PM2.5 Nonattainment Area showing the location of PM2.5 monitors



PM 2.5 NAAQS
Annual 15 ug/m³; 24-hour 98th percentile = 35 ug/m³, Averaged over 3-Years (2004-2006)

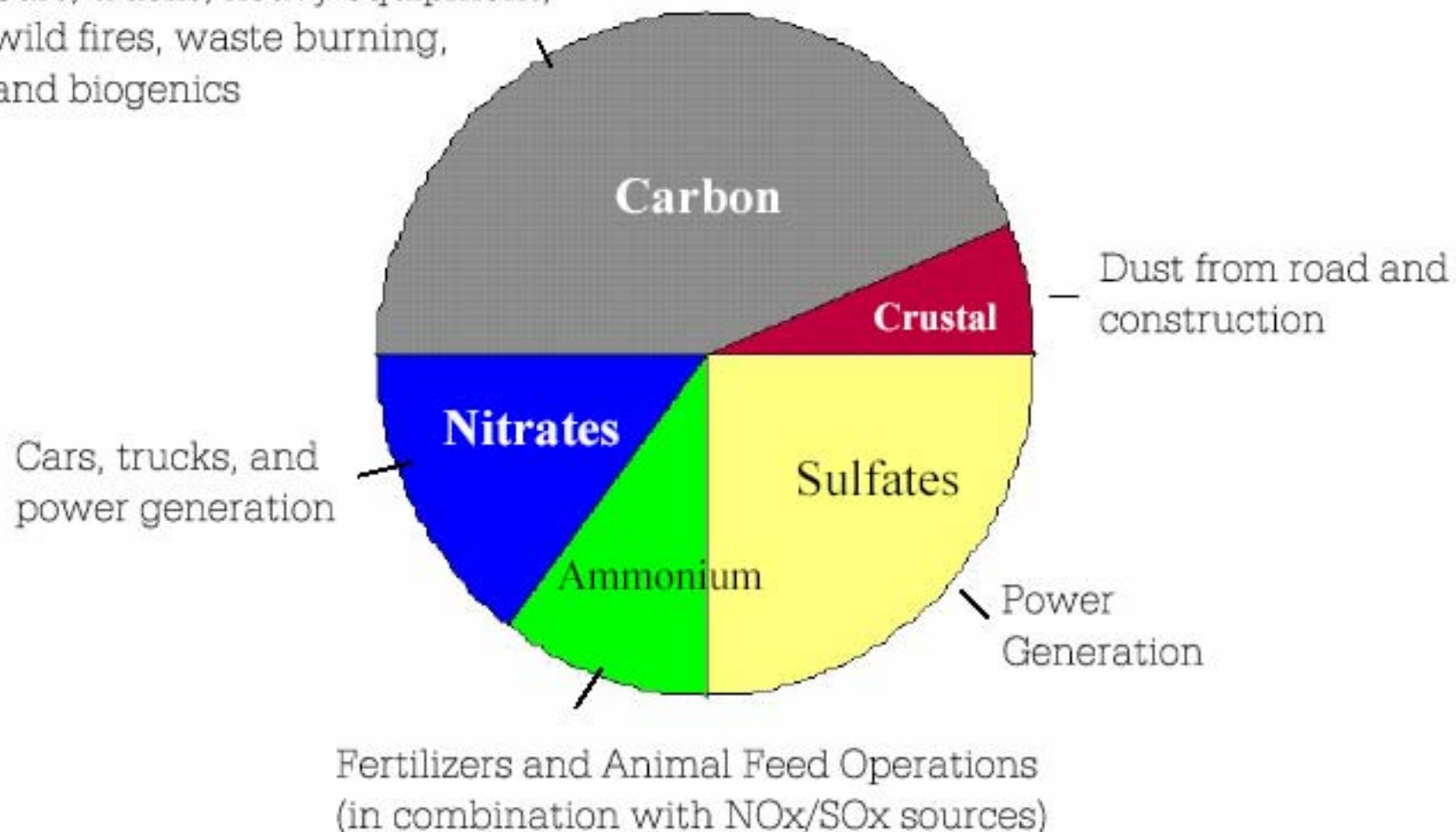


PM 2.5 is Unhealthy to Breathe

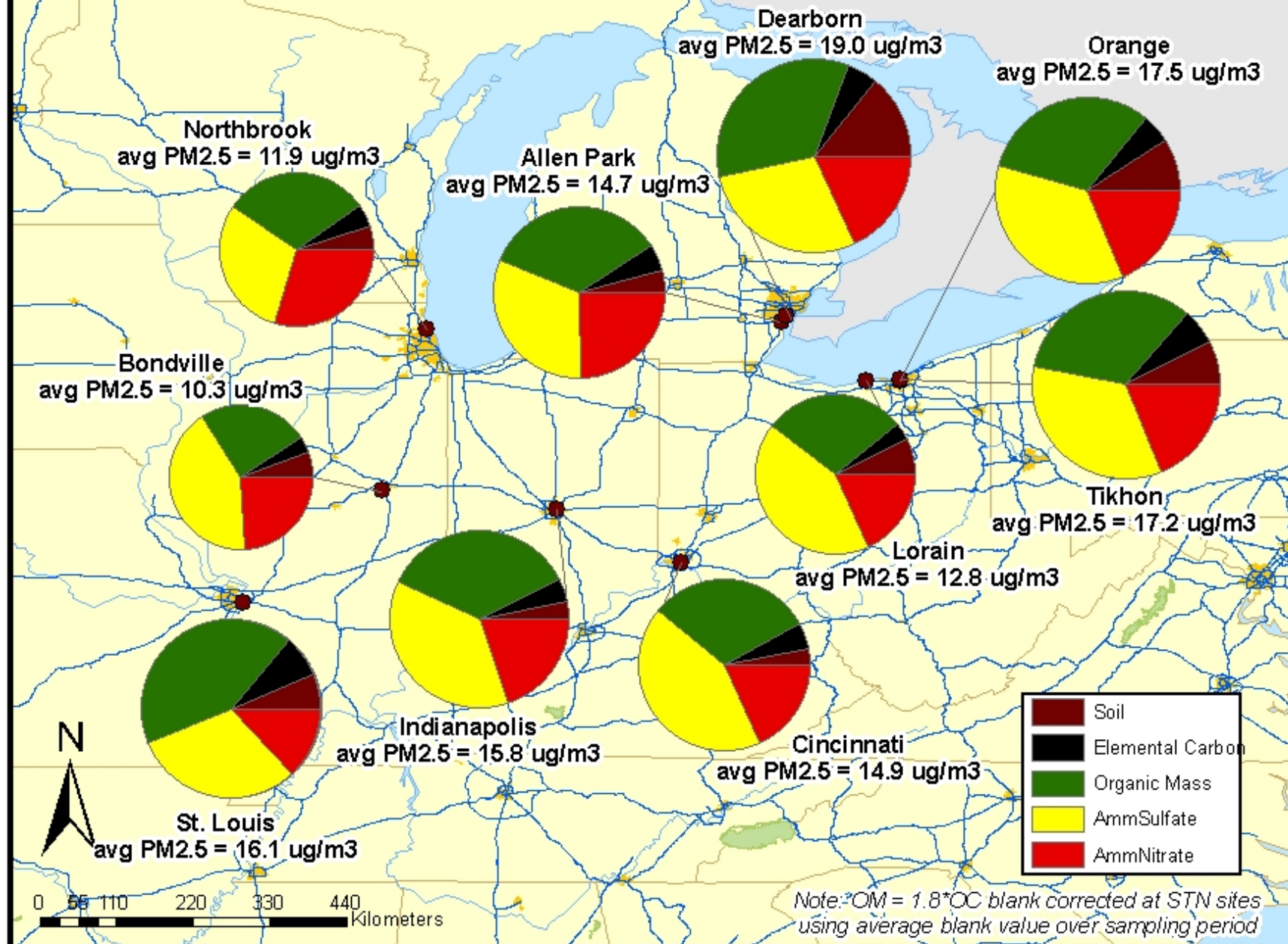
- Increases airway inflammation
- Decreases lung function
- Increases rate of hospital admissions due to cardiovascular disease
 - Heart Attacks
 - Congestive heart failure
 - Cardiac Arrhythmia
- Increases rate of hospital admissions due to respiratory disease
 - Asthma
 - Pneumonia
 - COPD
- Premature deaths

Automobiles, power generation, and other sources contribute to fine particle levels

Cars, trucks, heavy equipment,
wild fires, waste burning,
and biogenics

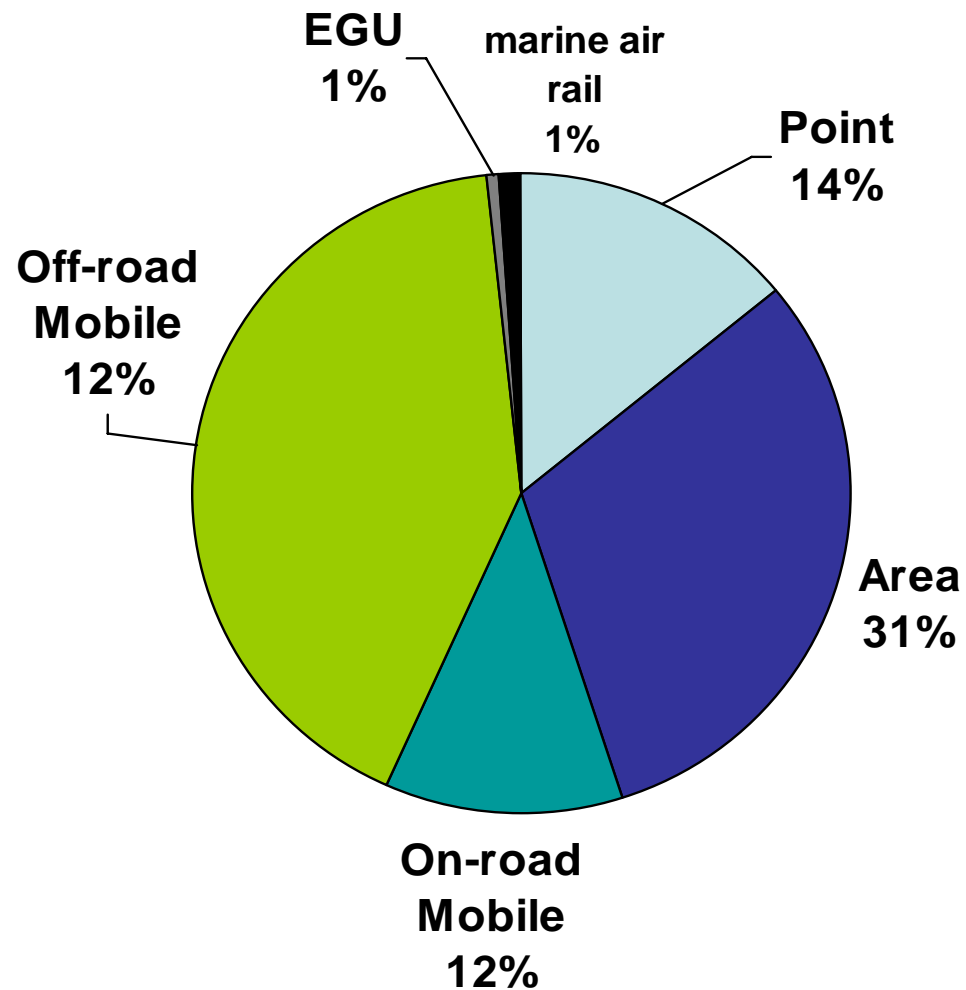


2004 PM_{2.5} Average Composition



SE Michigan Emissions 2005

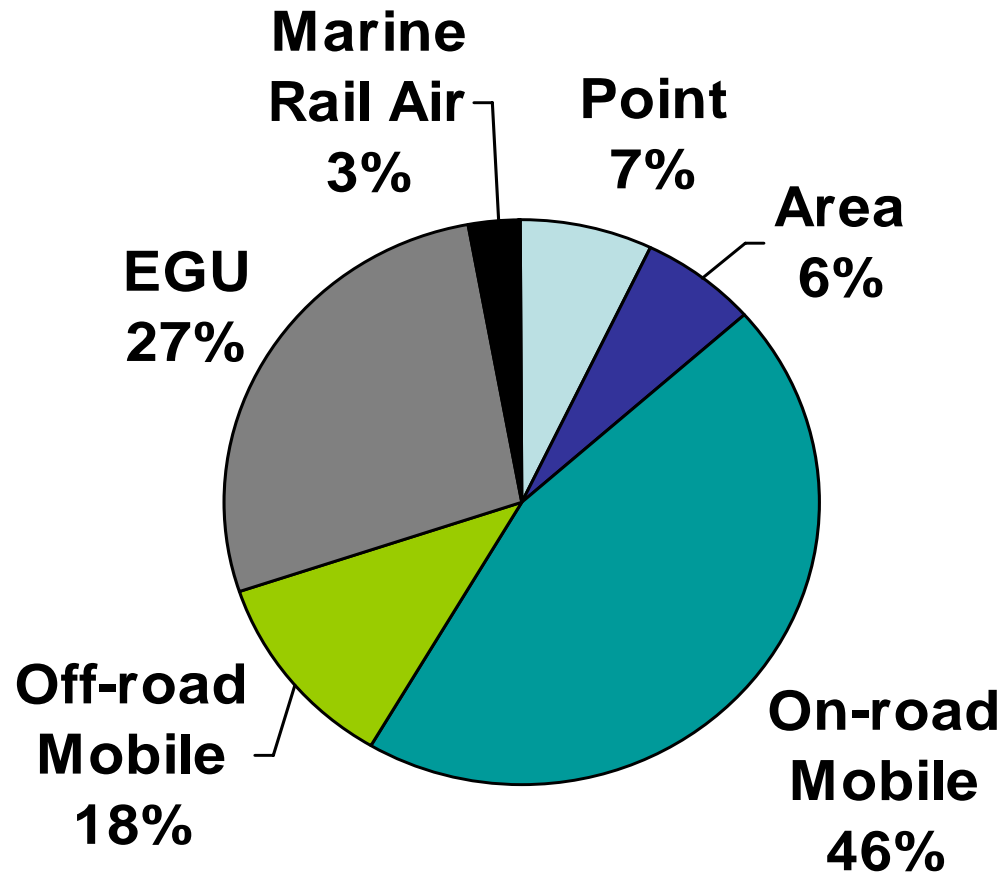
Primary PM 2.5 17345 tons per year



Source: PM 2.5 SIP Inventory

SE Michigan Emissions 2005

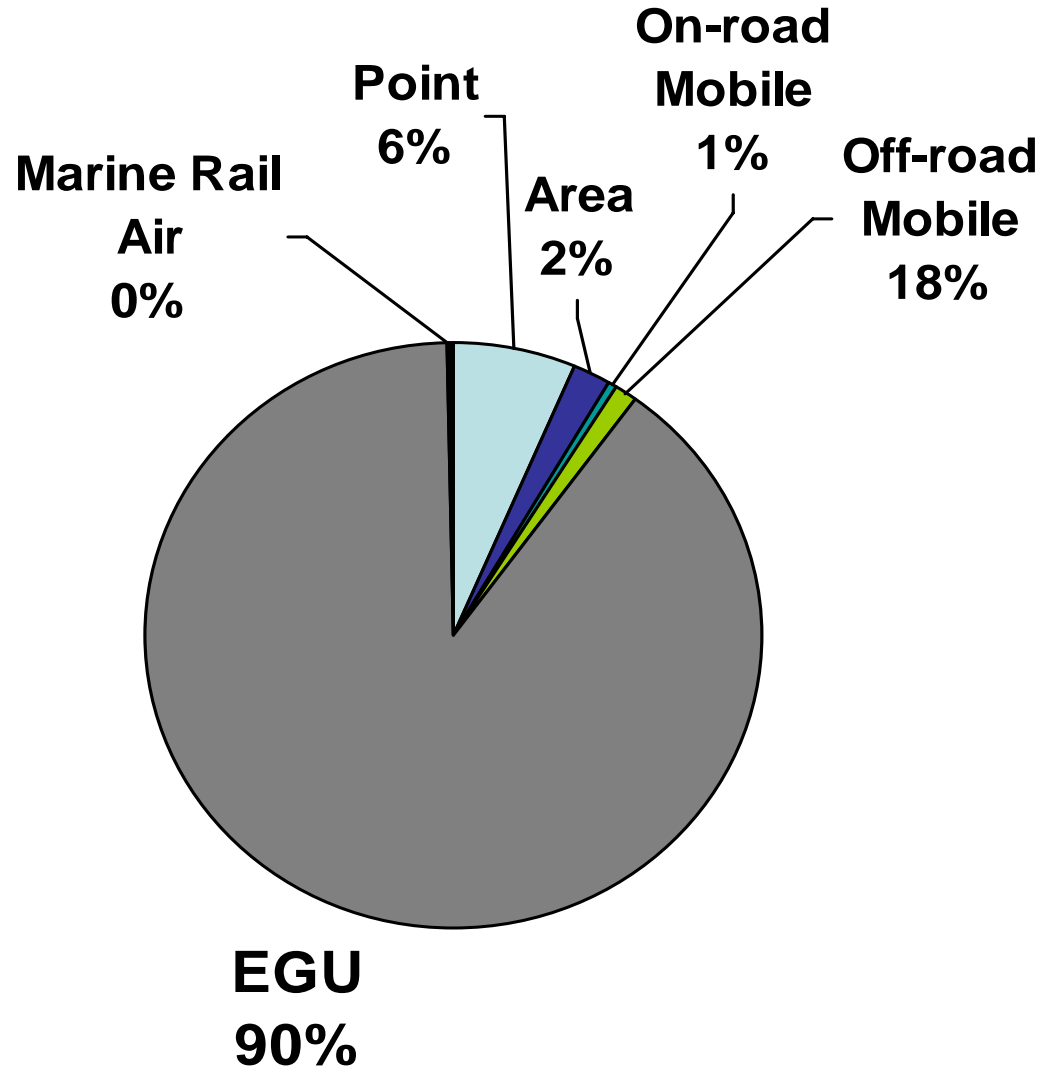
NO_x 254,438 tons per year



Source: PM 2.5 SIP Inventory

SE Michigan Emissions 2005

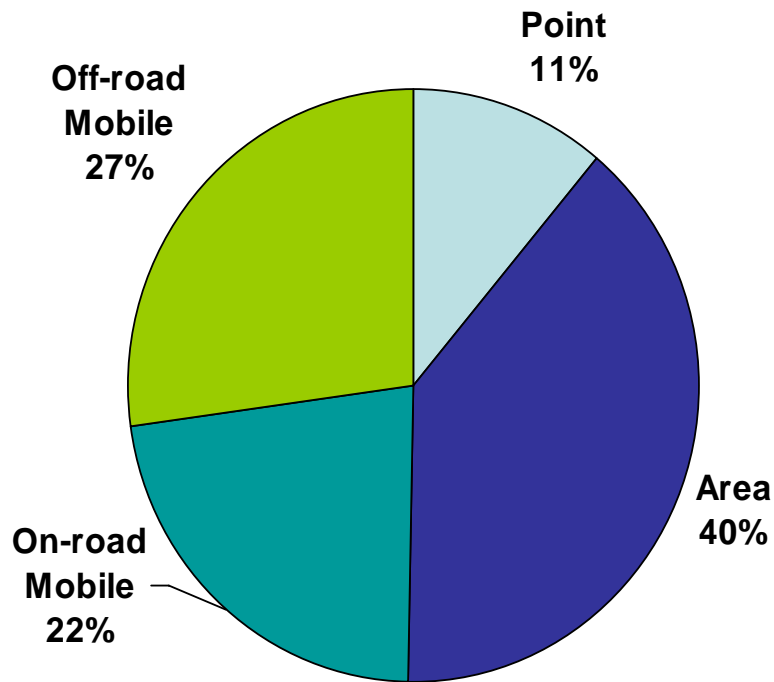
SO₂ 254,024 tons per year



Source: PM 2.5 SIP Inventory

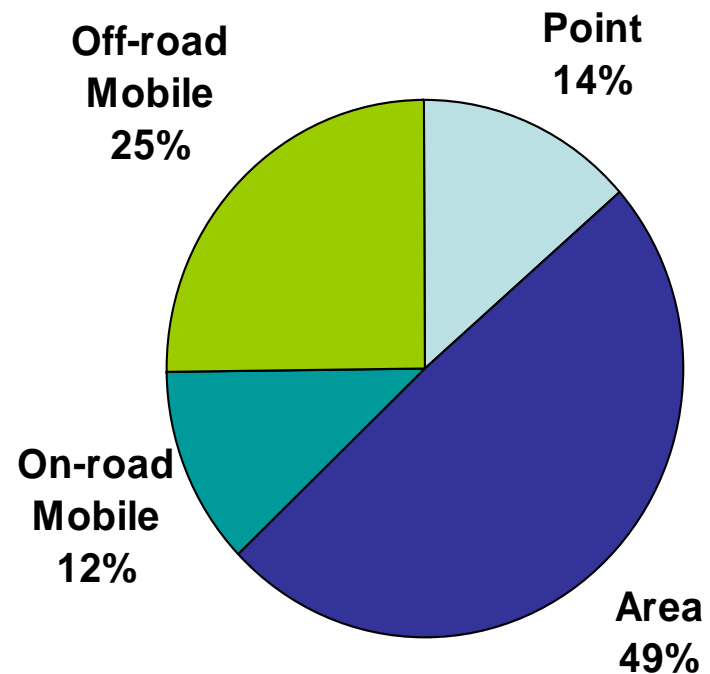
Southeast Michigan VOC Emissions

Year 2005



561 Tons/Day

Year 2018

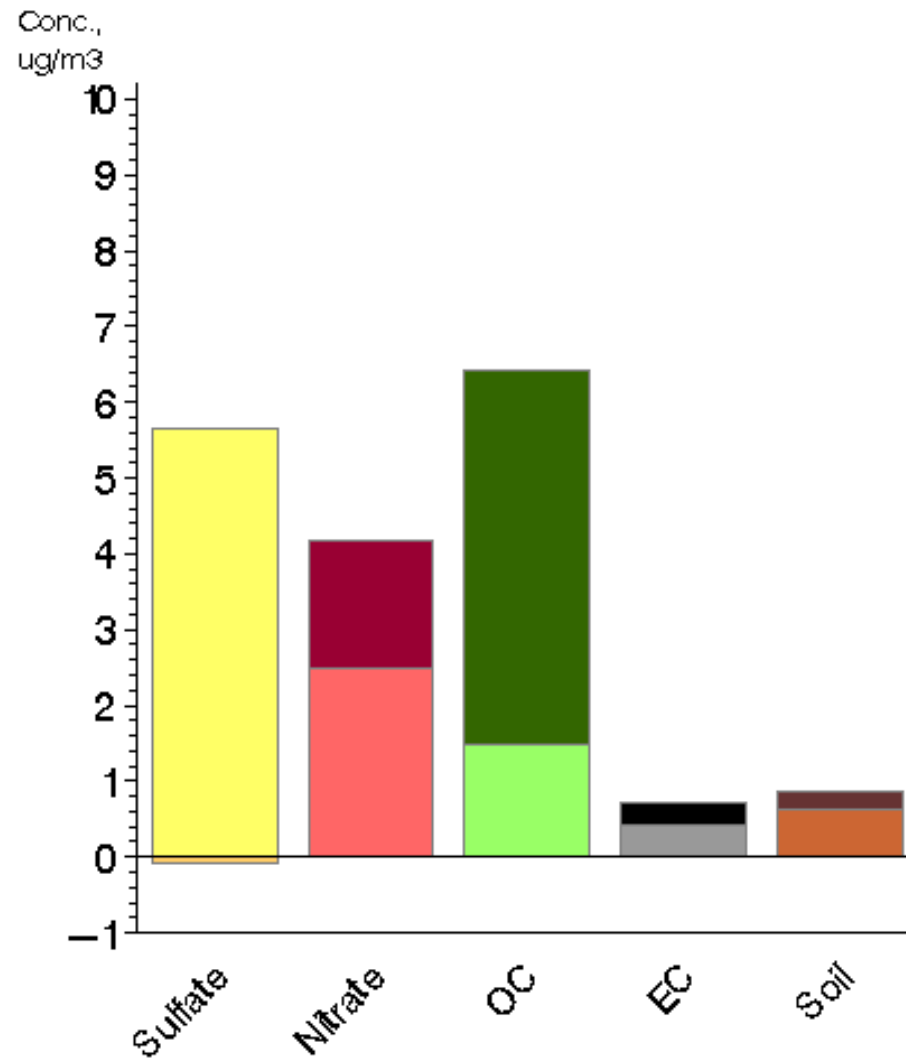


440 Tons/Day

Source: Ozone Redesignation Request for Southeast Michigan, 2007

Detroit Urban Excess, by Species

Bondville—Livonia Seasonal Average Used for Regional Background Estimation



Light color bars are regional background; darker bars are urban excess